

**Figure 1**

Sequence ID 1: human interferon alpha 1 (GenBank 13128950)

MASPFALLMVLVVLSCCKSSCSLGCDLPETHSLDNRRTLMLLAQMRSRISPSSCLMDRHDFGF  
PQEEDGNQFQKAPAISVLHELIQQIFNLFTTKDSSAAWDEDLLDKFCTELYQQLNDLEACV  
MQEERVGETPLMNADSILAVKKYFRRITLYLTEKKYSPCAWEVVRAEIMRSLSLSTNLQERL  
RRKE

Sequence ID 2: human interferon alpha-2a (GenBank 2781226)

CDLPQTHSLGSRRTLMLLAQMRRKISLFSCLKDRHDFGFPQEEFGNQFQKAETIPVLHEMIQ  
QIFNLFSTKDSSAAWDETLLDKFYTELYQQLNDLEACVIQGVGVETPLMKEDSILAVRKYF  
QRITLYLKEKKYSPCAWEVVRAEIMRSFSLSTNLQESLRSKE

Sequence ID 3: human interferon alpha-2b (GenBank 30171279)

MCDLPQTHSLGSRRTLMLLAQMRRISLFSCLKDRHDFGFPQEEFGNQFQKAETIPVLHEMI  
QQIFNLFSTKDSSAAWDETLLDKFYTELYQQLNDLEACVIQGVGVETPLMKEDSILAVRKY  
FQRITLYLKEKKYSPCAWEVVRAEIMRSFSLSTNLQESLRSKE

Sequence ID 4: human interferon alpha 4 (GenBank 10835103)

MALSFSLMAVLVLSYKSICSLGCDLPQTHSLGNRRALILLAQMGRISHFSCLKDRHDFGFP  
EEEFDGHQFQKAQAIISVLHEMIQQTFNLFSTEDSSAAWEQSLLEKFSTELYQQLNDLEACVI  
QEVGVEETPLMNEDSILAVRKYFQRITLYLTEKKYSPCAWEVVRAEIMRSLSFSTNLQKRLR  
RKD

Sequence ID 5: human interferon alpha 5 (GenBank 4504597)

MALPFVLLMALVVLNCKSICSLGCDLPQTHSLNRRTLMIMAQMGRISPFSCLKDRHDFGFP  
QEEFDGNQFQKAQAIISVLHEMIQQTFNLFSTKDSSATWDETLLDKFYTELYQQLNDLEACM  
MQEVGVEDTPLMNVDISILTVRKYFQRITLYLTEKKYSPCAWEVVRAEIMRSFSLSANLQERL  
RRKE

Sequence ID 6: human interferon alpha 6 (GenBank 11128015)

MALPFALLMALVVLSCCKSSCSLCDLPQTHSLGHRRRTMMLLAQMRRISLFSCLKDRHDFRF  
PQEEDGNQFQKAEAISVLHEVIQQTFNLFSTKDSSAWDERLLDKLYTELYQQLNDLEAC  
VMQEVWVGGTPLMNEDSILAVRKYFQRITLYLTEKKYSPCAWEVVRAEIMRSFSSRNQRLQE  
RLRRKE

Sequence ID 7: human interferon alpha 7 (GenBank 10800142)

MARSFSLMAVLVLSYKSICSLGCDLPQTHSLRNRRALILLAQMGRISPFSCLKDRHEFRFP  
EEEFDGHQFQKTQAISVLHEMIQQTFNLFSTEDSSAAWEQSLLEKFSTELYQQLNDLEACVI  
QEVGVEETPLMNEDFILAVRKYFQRITLYLTEKKYSPCAWEVVRAEIMRSFSFSTNLKKGLR  
RKD

Sequence ID 8: human interferon alpha 8 (GenBank 4504599)

MALTFYLMVALVVLSCCKSSLGCDLPQTHSLGNRRALILLAQMRRISPFSCLKDRHDFEFP  
QEEFDDKQFQKAQAIISVLHEMIQQTFNLFSTKDSSAALDETLLDEFYIELDQQLNDLEVLC  
QEVGVIIESPLMYEDSILAVRKYFQRITLYLTEKKYSSCAWEVVRAEIMRSFSLSINLQKRLKS  
KE

Sequence ID 9: human interferon alpha 10 (GenBank 4504589)

MALSFSLMAVLVLSYKSICSLGCDLPQTHSLGNRRALILLGQMGRISPFSCLKDRHDFRIPQ  
EEFDGNQFQKAQAIISVLHEMIQQTFNLFSTEDSSAAWEQSLLEKFSTELYQQLNDLEACVIQ  
EVGVEETPLMNEDSILAVRKYFQRITLYLIERKYSPPCAWEVVRAEIMRSLSFSTNLQKRLRRK  
D

Sequence ID 10: human interferon alpha 13 (GenBank 13128966)

MASPFALLMALVVLSCSKSSCSLGCDLPETHSLDNRRTLMLAQMSRISPSSCLMDRHDFGF  
PQEEFDGNQFQKAQAIISVLHELIQQIFNLFTTKDSSAAWDEDLLDKFCTELYQQLNDLEACV  
MQEERVGETPLMNADSLAVKKYFRRITLYLTEKKYSPPCAWEVVRAEIMRSLSLSTNLQERL  
RRKE

Sequence ID 11: human interferon alpha 14 (GenBank 4504591)

MALPFALMMALVVLSCSKSSCSLGCNLSQTHSLNNRRTLMLAQMRRIISPFSCLKDRHDFE  
FPQEEFDGNQFQKAQAIISVLHEMMQQTFNLFSTKNSSAAWDETLLDKFYIELFQQMNDLEA  
CVIQEVGVEETPLMNEDSILAVKKYFQRITLYLMEKKYSPPCAWEVVRAEIMRSFSFSTNLQK  
RLRRKD

Sequence ID 12: human interferon alpha 16 (GenBank 4504593)

MALSFSLMAVLVLSYKSICSLGCDLPQTHSLGNRRALILLAQMGRISHFSCLKDRYDFGFP  
QEVDGNQFQKAQAIASFHEMIQQTFNLFSTKDSSAAWDETLLDKFYIELFQQLNDLEACVT  
QEVGVEEIALMNEDSILAVRKYFQRITLYLMEKKYSPPCAWEVVRAEIMRSFSFSTNLQKGLR  
RKD

Sequence ID 13: human interferon alpha 17 (GenBank 10880985)

MALSFSLMAVLVLSYKSICSLGCDLPQTHSLGNRRALILLAQMGRISPFSCLKDRHDFGLP  
QEEFDGNQFQKTQAISVLHEMIQQTFNLFSTKDSSATWEQSLLEKFSTELYQQLNNLEACVI  
QEVGMEETPLMNEDSILAVRKYFQRITLYLTEKKYSPPCAWEVVRAEIMRSFSFSTNLQKILR  
RKD

Sequence ID 14: human interferon alpha 21 (4504595)

MALSFSLMAVLVLSYKSICSLGCDLPQTHSLGNRRALILLAQMGRISPFSCLKDRHDFGFP  
QEVDGNQFQKAQAIISVLHEMIQQTFNLFSTKDSSATWEQSLLEKFSTELNQQLNDMEACV  
IQEVGVEETPLMNVDSSILAVKKYFQRITLYLTEKKYSPPCAWEVVRAEIMRSFSLSKIFQERLR  
RKE

Sequence ID 15: human interferon beta (GenBank 124469), signal peptide deleted

MSYNLLGFLQRSSNFQCQKLLWQLNGRLEYCLKDRMNFIDPEEIKQLQQFQKEDAALTIYE  
MLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDFTRGKLMSSLHLKR  
YYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN

Sequence ID 16: human interferon kappa (GenBank 14488028)

MSTKPDMIQKCLWLEILMGIFIAGTLSLDCNLLNVHLRRVTWQNLRHSSMSNSFPVECLRE  
NIAFELPQEFLQYTQPMKRDIIKKAFYEMSLQAFNIFSQHTFKYWKERHLKQIQIGLDQQAEG

LNQCLEEDENENEDMKEMKENEMKPSEARVPQLSSLELRRYFHRIDNFLKEKKYSDCAWEI  
VRVEIRRCIYYFYKFTALFRRK

Sequence ID 17: human interferon tau (GenBank 28882045)

MIIKHFFGTVLVLLASTTIFSDLKLIIFQQQRQVNQESLKLLNKLQTLISIQQCLPHRKNFLPQK  
SLSPQQYQKGHTLAILHEMLQQIFSLFRANISLDGWEENHTEKFLIQLHQQLEYLEALMGLE  
AEKLSGTLGSDNLRLQVKMYFRRIHDXLENQDYSTCAWAIVQVEISRCLFFVFSLTEKLSKQ  
GRPLNDMKQELTTEFRSPR

Sequence ID 18: human interferon omega (GenBank 4504605)

MALLFPLLAALVMTSYSPVGSLGCDLPQNHGLLSRTNLVLLHQMRRI SPFLCLKDRRDFRFP  
QEMVKGSQQLQKAHVMSVLHEMLQQIFSLFHTERSAAWNMTLLDQLHTGLHQQLQHLETC  
LLQVVGEGESAGAISSPALTLLRYFQGIRVYLKEKKYSDCAWEVVRMEIMKSLFLSTNMQE  
RLRSKDRDLGSS

Sequence ID 19: interferon beta variant #2 L5Q in C17S background

MSYNQLGFLQRSSNFQSQKLLWQLNGRLEYCLKDRMNFDIPEEIKQLQQFQKEDAALTIYE  
MLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDFTRGKLMSSLHLKR  
YYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN

Sequence ID 20: interferon beta variant #7 L5Q/F8E in C17S background

MSYNQLGELQRSSNFQSQKLLWQLNGRLEYCLKDRMNFDIPEEIKQLQQFQKEDAALTIYE  
MLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDFTRGKLMSSLHLKR  
YYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN

Sequence ID 21: interferon beta variant #15 L5Q/F8E/F111N in C17S background

MSYNQLGELQRSSNFQSQKLLWQLNGRLEYCLKDRMNFDIPEEIKQLQQFQKEDAALTIYE  
MLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDNTRGKLMSSLHLK  
RYYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN

Sequence ID 22: interferon beta variant #23 L5Q/F8E/L116E in C17S background

MSYNQLGELQRSSNFQSQKLLWQLNGRLEYCLKDRMNFDIPEEIKQLQQFQKEDAALTIYE  
MLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDNTRGKEMSSLHLK  
RYYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN

Sequence ID 23: interferon beta variant #36 F8E/F111N/L116E in C17S background

MSYNLLGELQRSSNFQSQKLLWQLNGRLEYCLKDRMNFDIPEEIKQLQQFQKEDAALTIYE  
MLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDNTRGKEMSSLHLK  
RYYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN

Sequence ID 24: interferon beta variant #39 L5Q/F8E/F111N/L116E in C17S background

MSYNQLGELQRSSNFQSQKLLWQLNGRLEYCLKDRMNFDIPEEIKQLQQFQKEDAALTIYE  
MLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDNTRGKEMSSLHLK  
RYYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN

Sequence ID 25: interferon beta variant #64 L5Q/F8E/L47K/F111N/L116E/L120R in C17S background

MSYNQLGELQRSSNFQSQKLLWQLNGRLEYCLKDRMNFDIPEEIKQKQQFQKEDAALTIYE  
MLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDNTRGKEMSSRHLK  
RYYGRILHYLKAKEYSHCAWTIVRVEI LRNFYFINRLTGYLRN

Sequence ID 26: interferon kappa variant #4\_G7 V8N/W15R/Y48Q/M52N/F76S/Y78A/I89T  
LDCNLLNNHLRRVTRQNLRLSSMSNSFPVECLRENNIAFELPQEFLQQTQPNKRDIIKKAFYE  
MSLQAFNIFSQHTSKAWKERHLKQIQTGLDQQAEYLNQCLEEDEDENENEDMKEMKENEMKP  
SEARVPQLSSLELRRYFHRIDNFLKEKKYSDCAWEIVRVEIRRCIYYFYKFTALFRRK

Sequence ID 27: interferon kappa variant #46\_E2  
W15R/I37N/Y48Q/M52N/F76S/Y78A/I89T/ Y97D/V161A/C166A/Y168S/Y171T  
LDCNLLNVHLRRVTRQNLRLSSMSNSFPVECLRENNIAFELPQEFLQQTQPNKRDIIKKAFYE  
EMSLQAFNIFSQHTSKAWKERHLKQIQTGLDQQAEYLNQCLEEDEDENENEDMKEMKENEMKP  
PSEARVPQLSSLELRRYFHRIDNFLKEKKYSDCAWEIVRAEIRRALSYFTKFTALFRRK

Sequence ID 28: interferon kappa variant #47\_C4 W15R/F76S/Y78A  
LDCNLLNVHLRRVTRQNLRLSSMSNSFPVECLRENNIAFELPQEFLQYTQPMKRDIIKKAFYE  
MSLQAFNIFSQHTSKAWKERHLKQIQTGLDQQAEYLNQCLEEDEDENENEDMKEMKENEMKP  
SEARVPQLSSLELRRYFHRIDNFLKEKKYSDCAWEIVRVEIRRCIYYFYKFTALFRRK

Sequence ID 29: interferon kappa variant #23\_C10 I37N/Y48Q/M52N/F76S/Y78A/Y97D  
LDCNLLNVHLRRVTRQNLRLSSMSNSFPVECLRENNIAFELPQEFLQQTQPNKRDIIKKAFYE  
EMSLQAFNIFSQHTSKAWKERHLKQIQTGLDQQAEYLNQCLEEDEDENENEDMKEMKENEMKP  
PSEARVPQLSSLELRRYFHRIDNFLKEKKYSDCAWEIVRVEIRRCIYYFYKFTALFRRK

Sequence ID 30: interferon kappa variant #40\_A10 W15R/I37N/F76S/Y78A  
LDCNLLNVHLRRVTRQNLRLSSMSNSFPVECLRENNIAFELPQEFLQYTQPMKRDIIKKAFYE  
EMSLQAFNIFSQHTSKAWKERHLKQIQTGLDQQAEYLNQCLEEDEDENENEDMKEMKENEMKP  
PSEARVPQLSSLELRRYFHRIDNFLKEKKYSDCAWEIVRVEIRRCIYYFYKFTALFRRK

**Figure 2**

```

1: 24 CDLPETHSLNRRTLMLLAQMSRISPSSCLMDRHDFGPQEEFDGNQFQKAPAIISVLHEL 83
2a: 2 CDLPQTHSLGSRRTLMLLAQMRKISLFSCLKDRHDFGPQEEF-GNQFQKAETIPVLHEM 60
2b: 2 CDLPQTHSLGSRRTLMLLAQMRRIISLFSCLKDRHDFGPQEEF-GNQFQKAETIPVLHEM 60
4: 24 CDLPQTHSLGNRRALILLAQMGRISHFSCLKDRHDFGPPEEEFDGHQFQKAQAIISVLHEM 83
5: 24 CDLPQTHSLSNRRTLMIMAQMGRISPFSCLKDRHDFGPQEEFDGNQFQKAQAIISVLHEM 83
6: 24 CDLPQTHSLGHRRTMMLLAQMRRIISLFSCLKDRHDFRFPQEEFDGNQFQKAEEAISVLHEV 83
7: 24 CDLPQTHSLRNRRALILLAQMGRISPFSCLKDRHEFRFPPEEEFDGHQFQKTQAIISVLHEM 83
8: 24 CDLPQTHSLGNRRALILLAQMRRISPFSCLKDRHDFEFPPQEEFDDKQFQKAQAIISVLHEM 83
10: 24 CDLPQTHSLGNRRALILLGQMGRISPFSCLKDRHDFRIPQEEFDGNQFQKAQAIISVLHEM 83
13: 24 CDLPETHSLNRRTLMLLAQMSRISPSSCLMDRHDFGPQEEFDGNQFQKAPAIISVLHEL 83
14: 24 CNLSQTHSLNNRRTLMLMAQMRRISPFSCLKDRHDFEFPPQEEFDGNQFQKAQAIISVLHEM 83
16: 24 CDLPQTHSLGNRRALILLAQMGRISHFSCLKDRYDFGFPQEVDGNQFQKAQAIASFHEM 83
17: 24 CDLPQTHSLGNRRALILLAQMGRISPFSCLKDRHDFGLPQEEFDGNQFQKTQAIISVLHEM 83
21: 24 CDLPQTHSLGNRRALILLAQMGRISPFSCLKDRHDFGPQEEFDGNQFQKAQAIISVLHEM 83

1: 84 IQQIFNLFTTKDSSAAWDEDLLDKFCTELYQQLNDLEACVMQEERVGETPLMNADSLAV 143
2a: 61 IQQIFNLFSTKDSSAAWDETLLDKFYTELYQQLNDLEACVIQGVGVETPLMKEDSLAV 120
2b: 61 IQQIFNLFSTKDSSAAWDETLLDKFYTELYQQLNDLEACVIQGVGVETPLMKEDSLAV 120
4: 84 IQQTFNLFSTEDSSAAWEQSLLEKFSTELYQQLNDLEACVIQEVGVEETPLMNEDSLAV 143
5: 84 IQQTFNLFSTKDSSATWDETLLDKFYTELYQQLNDLEACMMQEVGVEDTPLMNVDILTV 143
6: 84 IQQTFNLFSTKDSSVAWDERLLDKLYTELYQQLNDLEACVMQEVVGGTPLMNEDSLAV 143
7: 84 IQQTFNLFSTEDSSAAWEQSLLEKFSTELYQQLNDLEACVIQEVGVEETPLMNEDFILAV 143
8: 84 IQQTFNLFSTKDSSAALDETLLDEFYIELDQQLNDLEVLCDQEVGVIESPMLMYEDSLAV 143
10: 84 IQQTFNLFSTEDSSAAWEQSLLEKFSTELYQQLNDLEACVIQEVGVEETPLMNEDSLAV 143
13: 84 IQQIFNLFTTKDSSAAWDEDLLDKFCTELYQQLNDLEACVMQEERVGETPLMNADSLAV 143
14: 84 MQQTFNLFSTKNSSAAWDETLEKFYIELFQQMNDLEACVIQEVGVEETPLMNEDSLAV 143
16: 84 IQQTFNLFSTKDSSAAWDETLLDKFYIELFQQLNDLEACVTQEVGVEEIALMNEDSLAV 143
17: 84 IQQTFNLFSTEDSSAAWEQSLLEKFSTELYQQLNNEACVIQEVGMEETPLMNEDSLAV 143
21: 84 IQQTFNLFSTKDSSATWEQSLLEKFSTELNQQLNDMEACVIQEVGVEETPLMNVDILAV 143

1: 144 KKYFRRITLYLTEKKYSPCAWEVVRAEIMRSLSLSTNLQERLRRKE 189
2a: 121 RKYFQRITLYLKEKKYSPCAWEVVRAEIMRSFSLSTNLQESLRSKE 166
2b: 121 RKYFQRITLYLKEKKYSPCAWEVVRAEIMRSFSLSTNLQESLRSKE 166
4: 144 RKYFQRITLYLTEKKYSPCAWEVVRAEIMRSLSFSTNLQKRLRRKD 189
5: 144 RKYFQRITLYLTEKKYSPCAWEVVRAEIMRSFSLSANLQERLRRKE 189
6: 144 RKYFQRITLYLTEKKYSPCAWEVVRAEIMRSFSSRNQERLRRKE 189
7: 144 RKYFQRITLYLTEKKYSPCAWEVVRAEIMRSFSFSTNLKKGLRRKD 189
8: 144 RKYFQRITLYLTEKKYSSCAWEVVRAEIMRSFSLINLQKRLKSKE 189
10: 144 RKYFQRITLYLIERKYSPCAWEVVRAEIMRSLSFSTNLQKRLRRKD 189
13: 144 KKYFRRITLYLTEKKYSPCAWEVVRAEIMRSLSLSTNLQERLRRKE 189
14: 144 KKYFQRITLYLMEKKYSPCAWEVVRAEIMRSFSFSTNLQKRLRRKD 189
16: 144 RKYFQRITLYLMGKKYSPCAWEVVRAEIMRSFSFSTNLQKGLRRKD 189
17: 144 RKYFQRITLYLTEKKYSPCAWEVVRAEIMRSLSFSTNLQKILRRKD 189
21: 144 KKYFQRITLYLTEKKYSPCAWEVVRAEIMRSFSLSKIFQERLRRKE 189

```

**Figure 3**

IFNK: ldcnllnvhlrrvtwqnlrh1ssmsnsfpveclreniafelpqeflqytq

1AU1: MSYNLLGFLQRSSNFQCQKLLWQLNGRLEY-CLKDRMNFDIPEEIKQLQQ

1B5L: CYLSRKLMMDAR-ENLKLLDRMNRLSPHSCLQDRKDFGLPQEMVEGDQ

1ITF: CDLPQTHSLGSR-RTLMLLAQMRKISLFSCLKDRHDFGFPQE-EFGNQ

IFNK: pmkrdikkafyemslqafnifsqht--fkywkerhkqiqigldqqaeayln

1AU1: FQKEDAALTIYEMLQNI FAIFRQDSSSTGWN ETIVENLLANVYHQINHLK

1B5L: LQKDQAFPVLYEMLQQSFNLFYTEHSSAAWDTTLEQLCTGLQQQLDHLD

1ITF: FQKAETIPVLHEMIQQIFNLFSTKDSSAAWDETLLDKFYTELYQQLNDE

IFNK: qcleedenenedmkemkenemkpsearvpqlsslelrryfhridnflkek

1AU1: TV-----LEEKLEKEDFTRGKLMSSLHLKRYYGRILHYLKAK

1B5L: TC-----RG|MDPIVTVKKYFQGIYDYLQEK

1ITF: AC-----VIQGVGVETPLMKEDSILAVRKYFQRITLYLKEK

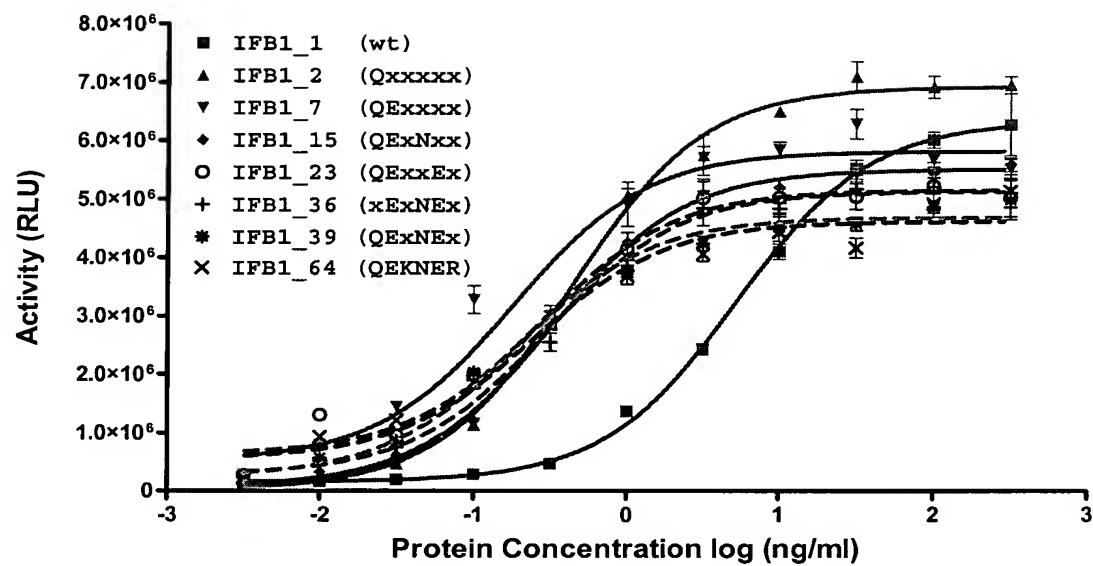
IFNK: kysdcaweivrveirrclyyfykftalfrrk

1AU1: EYSHCAWTIVRVEILRNFYFINRLTGYLRN

1B5L: GYSDCAWEIVRVEMMRALTVSTTLQKRLTK

1ITF: KYSPCAWEVVRAEIMRSFSLSTNLQESLRSKE

**Figure 4**



**Figure 5**

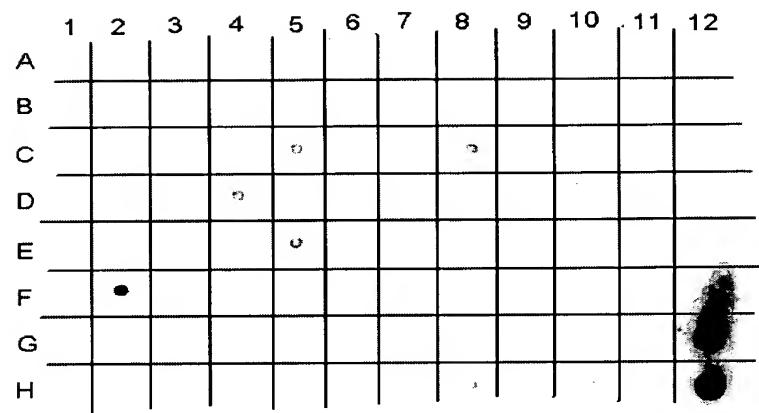


Figure 6

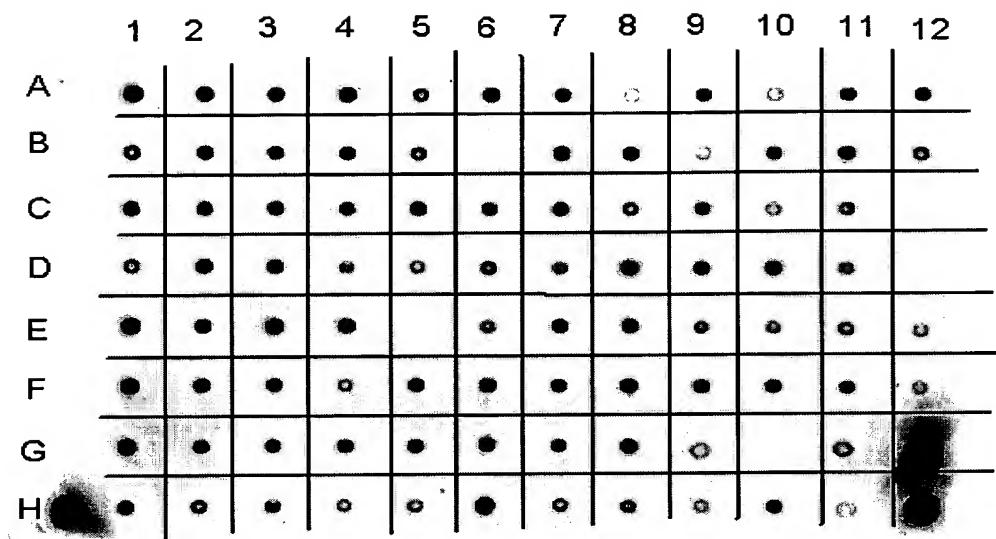


Figure 7

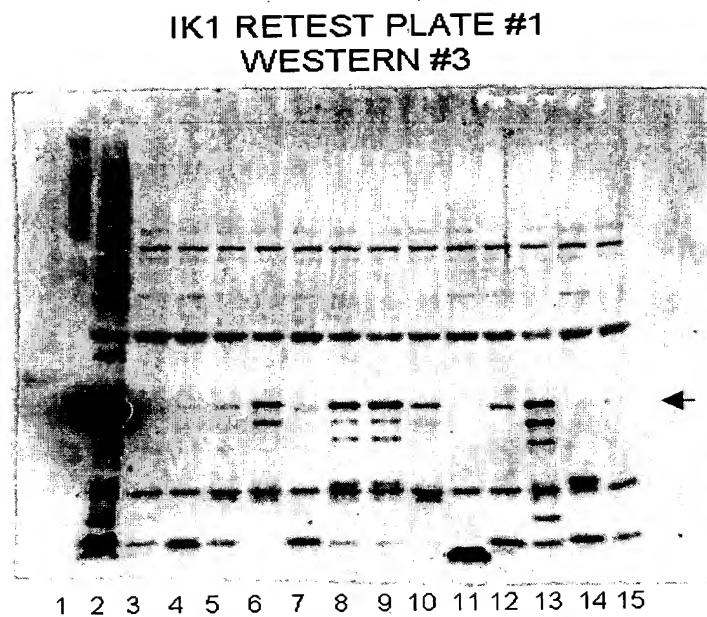


Figure 8

